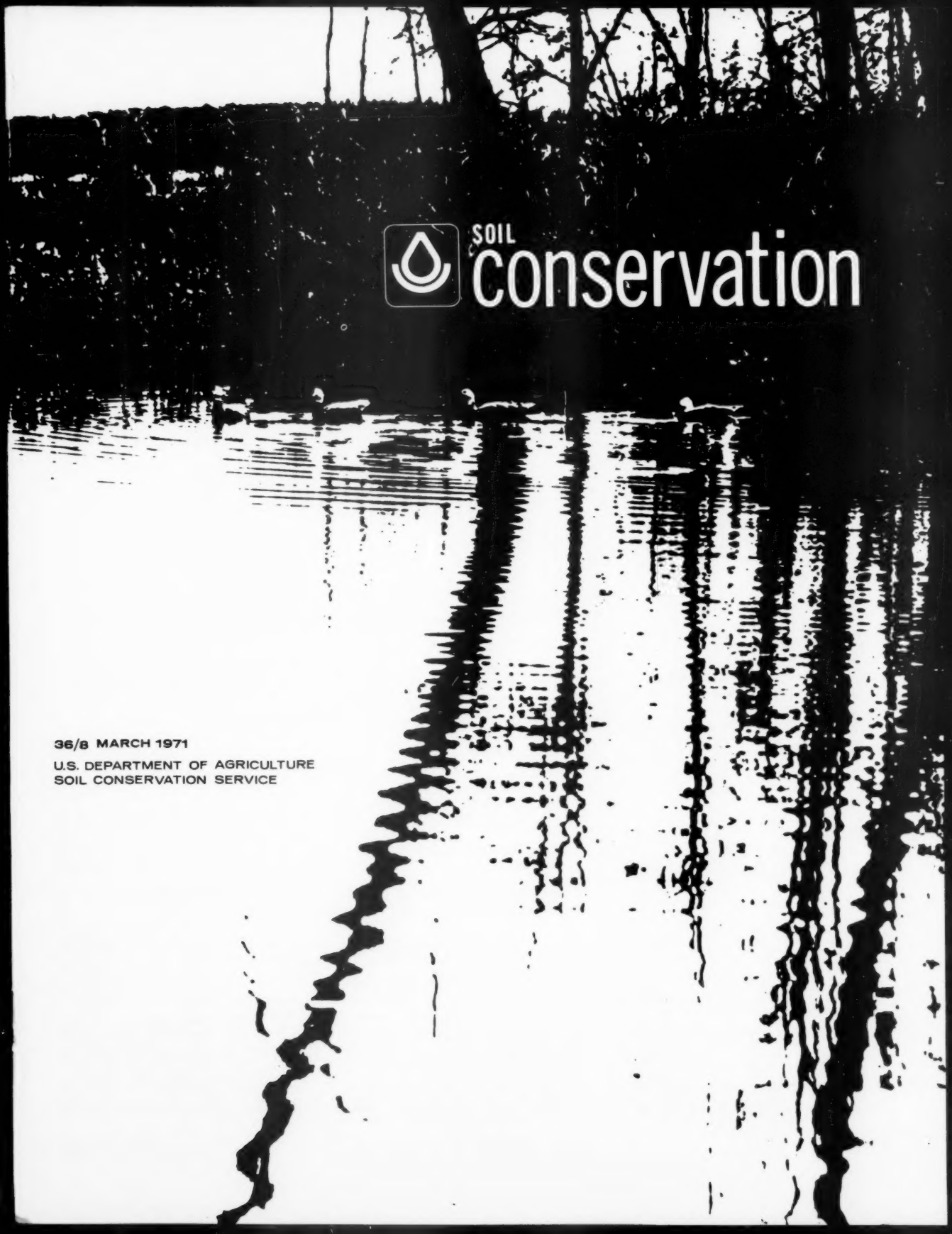

SOIL conservation

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SOIL CONSERVATION SERVICE

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When it's all wet . . .

Halfway between land and water is a complex and vied-for property called marsh or wet land. Whether it borders the ocean or a tiny creek, it is a vital part of the life of many wildlife species and a scenic part of the horizon. It's also prone to being filled in or drained for farming or freeways or many urban uses; dredged for minerals or easier navigation; or flooded for larger lakes. Helping identify wetland areas, encourage their dedication for wildlife, and make better habitat through conservation work is one job of SCS. Several articles this month tell of efforts by landowners, local conservation districts, SCS, and others in this regard.

Elsewhere in the issue other action for wildlife improvement is detailed, along with stories of conservation accomplishment on other fronts.

Prepared in the Division of Information, Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C. 20250

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Garden for geese

"A gigantic garden designed especially for geese." That's how specialists of the Ohio Division of Wildlife describe the Mosquito Creek Goose Management Refuge in northeastern Ohio.

Management of Canada geese, the main purpose of the facility, is in high gear on 1,200 acres touched by northern shores of Mosquito Creek Reservoir, the state's second largest manmade lake. This 10-mile-long haven for bass and walleye helps to lure the feathered travelers.

Since work began on the refuge in 1958, Ohio has moved up measurably in the world of wild geese. Work done at Mosquito Creek and in two other areas (Killdeer Refuge in Wyandot County and Mercer Refuge in Mercer County) has increased the state's population of Canada geese from 2,500 in 1958 to 40,000 in 1969.

Just over a decade ago, Mosquito Creek Refuge was only a tract of rough land, choked with brambles and scrub brush where long ago men had tried farming and failed. To help change this wasteland into a paradise for geese, the state Wildlife Division enlisted the aid of a number of federal, state, and local agencies—including the Trumbull County Soil and Water Conservation District, headquartered in Cortland, Ohio.

Through the district, the Soil Conservation Service surveyed the wet soils of the site, made an inventory of needs, and helped the Wildlife Division work out a long-range program of development to "provide the needed wide expanse of open land composed primarily of corn, fall-seeded grain, and low-growth meadows as feeding areas for Canada geese."

The wild Canadian is a field-feeder with a taste for grains. Above all, he is a creature of water and

wide open spaces who mistrusts close quarters of any type. The conservation plan for Mosquito Creek was tailored to suit his needs perfectly. Cropping to provide corn, small grains, clover, and seed-producing grasses is practiced on 350 acres. Cornstalks are chopped down in the field, as geese are skittish of standing plants. Extra corn is harvested in normal fashion, then distributed to concentrated feeding areas.

Cropped land on the refuge benefits from proper liming, fertilizing, and crop rotation. Rough, hard-to-manage fields have been seeded to permanent meadows to protect the soil and to provide "grazing" for geese. Regular annual mowing prevents invasion by scrub brush.

The conservationists found it necessary to install an extensive system of drains in the area before its wet soils could be cultivated or harvested. This drainage system includes miles of carefully channeled waterways that form open spaces highly prized by the big waterfowl. Its inter-connected ponds and lagoons offer the birds many sanctuaries for resting, nesting, and feeding.

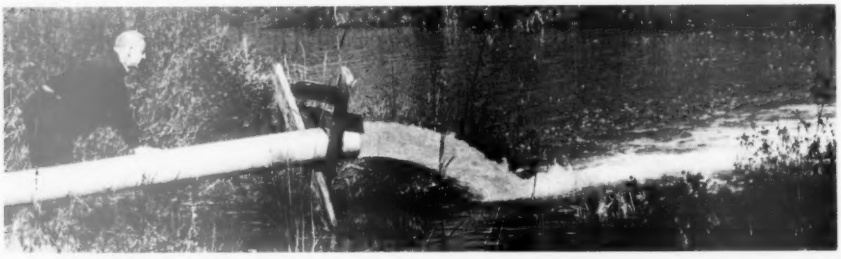
Long, level ditches on the refuge look like drain channels, but aren't. They are moats that protect the geese from predators. The soil removed to create these ditches is placed on the downslope sides and seeded, creating added space for loafing and nesting.

These conservation measures have helped to increase the state's goose population sixteenfold since 1958. Even more encouraging is the fact that Ohio refuge areas produced more than 8,000 locally hatched geese at the most recent tally. Fourteen years ago, the score was 250.

This is the real payoff, according to Game Protector Norm Myers. Mr. Myers says, "The geese tend to return to places where they learned to fly. It's a sure thing we get a lot of hometowners stopping here now. And they lead a lot of transients in with them."

Several hundred permits for shooting blinds within a 5-mile radius of Mosquito Creek are taken out annually by eligible landowners. Daily shooting fees for hunters range from $20 to $25 a person. And the shooters spend money locally for food, lodging, gas, and provisions, adding to the benefits from the refuge. What an individual waterfowler spends to bag a single goose may range all the way up to $75 a bird.

More profound values of neighboring communities are seen in the increasing numbers of students, bird-watchers, tour-groups, and other visitors who are drawn to witness the spectacular flights in spring and fall. They outnumber the gunners considerably.—BERNHARD A. ROTH, *public information officer, SCS, Upper Darby, Pa.* ♦



All for the proud Canada goose, ditches were dug that don't go anywhere, and a pumping system installed that keeps the right amount of water in them.

Channels save the Bayou

By Irvin L. Sonnier and Dolan Kleinpeter
State construction engineer, SCS, Alexandria, La., and district conservationist, SCS, New Iberia, La.

Crawfish, frogs, ducks, fish, and furbearing animals *like* a Louisiana watershed project—and so do the Cajun bayou dwellers who hunt them. The Lower Bayou Teche Watershed Project was designed to make the environment better for wildlife as well as for people.

In the years from 1930 to 1960, roads, canals, and other structures were built in the area's marshes. These caused water levels in the wet lands to change daily. The marsh dried up when it shouldn't have, and at other times water got too high. This destroyed plant life and drove away the birds and animals dependent on it. It also ruined the habitat of muskrat and other creatures which must have a constant water level at which to build their nests or dens.

The Lower Bayou Teche Project was designed to stabilize water levels in the marshes and at the same time to improve 168 miles of drainage and flood-prevention channels. Begun in October 1965, the project is sponsored by the Iberia Parish Police Jury in cooperation with three soil and water conservation districts —Iberia-Vermilion, Lafayette, and St. Mary.

The Police Jury is constructing a fourth of the project with its own funds and equipment, and the Soil Conservation Service is providing the rest of the funds under Public Law 566.

To provide outlets for local farmers' cropland drainage systems, ditches were excavated through marshes in the southern part of the project area adjoining the Gulf of Mexico. But, channel improvement through these low-lying sites was not designed to convert any of the wet land to farmland but to improve the wildlife habitat of the area. Spoil from channels excavated in marshes, swamps, and wooded areas was shaped with a bulldozer (or, in wet areas, a dragline bucket) to create wildlife habitat and make maintenance and access easier.

Contractors in close cooperation with the local landowners placed spoil in the marsh adjacent to the channel in such a way that it could be used to create ponds for crawfish, ducks, and geese. Landowners already have constructed eight such ponds. Spoil banks not only serve as levees for marshes and ponds but also provide cover and homesites for rabbits, deer, and other animals. And they afford easier access to the wildlife areas.

Rights-of-way were cleared with bulldozers where conditions were dry. In wet areas the trees were cleared with power saws. Spoil was

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placed around the stumps on the berms of the channels and then dressed to provide for maintenance access.

Landowners cooperating with the soil and water conservation districts are installing pipe drops at the outlets of small ditches to prevent erosion and keep sediment from clogging the main ditch. Agricultural Stabilization and Conservation Service provides cost-sharing on the pipe drops. Other erosion-control practices are also part of good land treatment.

Ovide Lancon, a life-long resident of Iberia Parish, said, "The watershed program is one of the best things that has happened to the marsh as far as wildlife is concerned. It has restored the marsh to what it was back 50 years ago. Crawfish, frogs, ducks, and furbearers are more plentiful than they have been in many years. The fishing in the watershed channels also has improved from what it used to be here."

Pointing to an area dotted with muskrat lodges, he summed up the effects of the project like this: "Up until last year there were no muskrats on my land. Now there are nutria, racoon, and mink in here, too. The nutria like to come to this high levee to rest, and they feed on the plants growing in the fresh water. Mink and coon feed on crawfish in the water. There are a couple of fellows who trap in here to supplement their income. Last year, each man averaged about $2,000 in fur sales. And rabbit hunting's better since they put the levee in. You can get a mess of rabbits here anytime, now. Duck hunting's good, too—hunters usually get their limit. The ducks feed on smartweed and other plants that grow in the shallow water." Lancon's 400-acre marsh is fast becoming one of the choicest hunting and fishing spots in the area. And he employs 18 to 20 people to trap and haul crawfish to local markets.

A side benefit of the project is improved navigability of area waters. Water in many of the channels formerly was too shallow for boat travel. Now, parish residents can paddle instead of push along their watery byways.

The Lower Bayou Teche watershed is a good example of the excellent cooperation of many agencies to provide drainage, flood protection, and wildlife for all of the people in the watershed. ♦

That others might enjoy wildlife

Cordelia Stanwood's love of wild things and unspoiled places inspired her to become an author, ornithologist, and nature photographer. And the nature refuge and study area she founded 50 years ago in Ellsworth, Maine, is a living memorial to her interest. Several thousand visitors each year come to experience nature at its best at Birdsacre Sanctuary. Along the refuge's shaded paths echoes a medley of song from dozens of species of birds —tempted here by the conservation efforts of Birdsacre's managers.

In 1959, Birdsacre Sanctuary came within a spade of being "developed" as a modern motel. Thanks largely to the concern of area resident Chandler Richmond, Ellsworth citizens purchased the 50-acre site and incorporated it as a foundation to preserve the peaceful natural surroundings. Richmond serves as curator.

Richmond's first tasks were to restore the hundred-year-old Stanwood family homestead as a museum and to re-open the old trails first established by Miss Stanwood. He began a continuing program of identifying and labeling species of trees, shrubs, wildflowers, ferns, and lichens. When the Hancock County Soil and Water Conservation District (which includes the town of Ellsworth) was formed in 1964, Richmond requested technical help through the district in improving the property. He worked with SCS conservationists to develop a conservation plan for the sanctuary.

Since then, 500 wildlife-attracting shrubs of five different species have been planted on Birdsacre. Nine more nature trails have been completed, winding 2 miles through the scenic habitat of the refuge. Two wildlife ponds have been constructed —with a spawning bed for the stocked brook trout. These and other conservation practices were accomplished with technical help from SCS and the Maine Forest Service. The Agricultural Stabilization and Conservation Service provided cost-sharing help.

During the 10-year history of the new Birdsacre, 99 species of birds have been sighted there. Deer are frequent visitors, to feed on the flat peas that thrive on the banks of the larger pond.

Richmond's interest and efforts led him to be elected to the Hancock County District board. He served 3 years as vice-chairman. He also has been active in the district's program of conservation education. Scouts and school groups in large numbers have heard Richmond's wildlife lectures and gained an appreciation of natural surroundings from them.

Birdsacre Sanctuary is an ever more popular memorial to a pioneering environmentalist and to some who are working today that others might enjoy nature.—KENNETH J. LAFLAMME, *soil scientist, SCS, Ellsworth, Maine.* ♦

700,000 ducks from farm ponds in Montana

By Clayton E. Ogle
State resource conservationist, SCS, Bozeman, Mont.

Seven hundred thousand ducks—that's a lot of pinfeathers, a lot of wings whirring over the wet lands. And a valuable bounty for the sportsman and the naturalist who prize the wild, free beauty of migrating waterfowl. And that number of waterfowl is produced annually on ponds built and maintained by Montana farmers and ranchers, according to a recent study in 10 soil and water conservation districts.

Twice each year the lanes of the Central Flyway are churned by the tireless wings of great flocks of ducks and geese. Most of the mallards and pintails among these are produced in the prairie pothole area of Alberta, Manitoba, Saskatchewan, the Dakotas, Minnesota, and Montana. The myriad of small, glacial ponds in this area also teem with blue-winged teal, American widgeon, and gadwall. These surface-feeding ducks prefer the small ponds of the prairies to larger water areas.

Unfortunately, intensive agricultural use, road building, and other development have reduced natural duck-producing areas on the prairies. The feeding and nesting areas provided for wild waterfowl by the naturally occurring glacial potholes have suffered from the onslaught of civilization and technological progress.

Landowners continue to ask for drainage assistance, but three-fourths of the requests do not result in projects because of wildlife and related values.

Some landowners and developers of the area have begun to realize that their marshes and wet lands, and the wildlife they support, are important economic assets as well as irreplaceable natural resources. In an effort to supplement the dwindling waterfowl habitat in the prairies, many landowners have constructed ponds on their property to provide room for ducks to feed, nest, and raise their young. In the past 30 years, 60,000 ponds have been installed by Montana landowners with assistance from Rural Environmental Assistance Program and other USDA cost-sharing programs. This adds up to 144,000 acres of water created, at an average of 2.4 acres a pond. Several thousand additional ponds have been built without cost-sharing with technical assistance from Soil Conservation Service through soil and water conservation districts. Each year more than 1,400 acres of water area in about 600

A shallow Montana farm pond makes good waterfowl habitat and is fun for people too.

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District Conservationist O. M. Mabry (above) checks an oil-drum nest built for mallards. Hoped-for result of man's extra care is a nest full of tomorrow's ducks (below).

ponds is added to the total. Most were installed primarily for livestock water, but waterfowl has reaped the multipurpose side benefits of water development.

What does all this pond construction mean to the waterfowl in the area? The 10-district study indicates that up to 100,000 broods of waterfowl are produced on the ponds each year. An average of nearly two broods containing 14 waterfowl per pond was observed by researchers. And, as we have said, that adds up to 700,000 ducks. The study indicates up to a third of Montana's waterfowl production could come from rancher built ponds.

Conservationists have found that Canada geese will nest on ponds as small as 2 acres if suitable nesting sites are available. Islands for nesting geese and ducks protect them from predators and increase the numbers of young that survive. Ranchers are starting to modify pond construction techniques to include islands for loafing areas and nesting sites. Some are placing bales of straw on the islands, a practice which makes them even more attractive as nesting sites.

SCS specialists in cooperation with Montana State University, U.S. Fish and Wildlife Service, and the Montana Fish and Game Department are urging pond builders to include islands by cutting through peninsulas, by building small mounds, and by isolating natural high areas that can be surrounded by water. The islands add nothing to the costs of pond construction.

Montana landowners in increasing numbers also are applying land-management practices to supplement pond development. Grazing systems to keep cattle away from ponds during the nesting season improve the manmade wet lands, as do sediment-control measures such as grassed waterways, and seeding of feeding areas to plants appetizing to waterfowl. Concerned ranchers know the value of their marshes and are working to provide good wetland habitat for future waterfowl in the prairie pothole country ♦

Goose hunters' heaven

By Ervin A. Pavlik
District conservationist, SCS, Columbus, Tex.

Eagle Lake, Tex., has achieved fame as "the goose-hunting capital of the world." And with good reason—more than a million geese come to Texas each year, and a great many of these birds are drawn to the wet lands and lush ricefields of the Eagle Lake area.

Local farmers know the value of their wildlife resources, which draw nearly a million dollars a year into the economy of their community. And they know, too, that their rice crops help keep the geese—and the dollars—coming in. SCS conservationists assist the Colorado Soil and Water Conservation District in helping Eagle Lake landowners improve their cropland for both rice and goose production.

A 1-year rice, 2-year fallow, or a 1-year rice and 3-year fallow rotation is the most common system. After yielding a crop of rice, fields can readily be managed to provide excellent habitat for waterfowl.

John Clipson is one of the local rice growers cooperating with the Colorado District in managing his land for ducks and geese. Clipson floods several of his ricefields each year to provide roosting and nesting areas for waterfowl. These fields are hunted only rarely, when the geese have moved to some other area to roost.

Clipson hunts waterfowl only in the morning, allowing the ducks and geese time to feed and rest during the afternoon. This practice is unwritten law among the region's hunters—it is followed by all seven of the hunting clubs in the district, as well as by most individual hunters.

Clipson, like other sportsmen and landowners in the district, is helping Eagle Lake keep its reputation as a Mecca for geese—and for hunters. ♦

A diet of rice at Eagle Lake.

This pond is for the birds

By James H. Canterberry
District conservationist, SCS, Charleston, W. Va.

High above the Kanawha Valley's vast industrial complex in southern West Virginia, Harvey and Anne Shreve's country home has a different view—a unique wildlife pond.

Nearly all the ponds and lakes in West Virginia are manmade since the state was not blessed with many natural lakes. The Shreves' pond is unusual because it is near the top of a hill and because it was constructed "just for the birds."

The Shreves purchased their 60-acre tract on Middle Ridge in Kanawha County in 1965. Harvey owns and operates an automobile dealership in St. Albans.

The Shreves soon became cooperators with the Capitol Soil Conservation District. Soil Conservation Service conservationists helped them develop a conservation plan to enhance most of the land for wildlife.

A must for the plan was a pond, according to Mrs. Shreve. Working with Ernest Ashcraft, SCS conservation technician, they selected a suitable location that could be viewed from the site for their new home.

The pond was designed with curving sides and tapered ends so that it would have a natural look. The pond is shallow to enable the growth of cattails, rushes, and other water plants that would attract birds. The final touch was to seed, fertilize, and mulch the dam and all disturbed areas to prevent erosion. Cost-sharing assistance was provided by the Agricultural Stabilization and Conservation Service.

Once filled by rain, the pond became the home and visiting place for many species of birds and animals. A fascinating array of aquatic plants began to appear around the edges, and the half-acre pond soon had created its own ecosystem.

Harvey and Anne Shreve are enthusiastic conservationists. Although she has no formal training in ornithology, she was cited in October 1970 by Governor Arch A. Moore, Jr., for having adanced that science in the state. The Shreves have given their attention to development of natural resources for environmental improvement.

Much of their land was left in its native vegetation for wildlife habitat. A grown-up field was converted from brush to grass to improve nesting areas for birds and rabbits. Almost all the wildlife food is provided by native plants. Mowing of

Mrs. Shreve views some of her shallow pond's flora that do a good job in attracting fauna.

open fields is delayed until late July, allowing time for most birds and rabbits to nest.

As avid bird watchers, the Shreves band many birds. Last year, they were visited by 160 different species. They have added five bird records to Kanawha County and three records to the state. The three birds not previously recorded as seen in West Virginia are the sandhill crane, scissortail flycatcher, and buff-breasted sandpiper.

The Shreves' wildlife pond looks like a giant mirror when viewed from their new octagonal-shaped home. Although they are only 10 miles from Charleston, the state capital, their pond has proved a success as a watering and feeding place. They have seen deer, raccoon, rabbits, foxes, and even a black bear.

And they thought their pond would be just for the birds. ♦

Wet lands improved for duck habitat

By James T. Hardy

District conservationist, SCS, Mahnomen, Minn.

The prairie potholes of Mahnomen County, Minn., annually produce a large number of migratory birds.

The desire for agricultural land was putting a squeeze on these prime breeding and nesting areas, and the breeding grounds were diminishing. But conservation-minded citizens are resisting this trend—with success. Among them are Erwin Steiner and his son Jack.

With help of the Mahnomen Soil and Water Conservation District and concerned Federal agencies, they have developed a large parcel of land for the preservation of waterfowl and upland game.

The development was on 225 acres of formerly unproductive land that was too wet for agriculture and not wet enough for good waterfowl production.

In fall 1966, the Steiners built two water-control structures to retain runoff and provide needed water storage. The result: Two wetland areas, of 4 and 13 acres, for waterfowl production.

More development was done in June 1967 when the Steiners blasted 42 waterfowl breeding and courting potholes with an ammonium nitrate mixture to create shallow areas of open water. These 20- by 30-foot pits were spaced about 250 feet apart throughout the remaining wet land.

The pits were made from 4 to 6 feet deep so that natural plant succession would not close them in with vegetation, and an improved habitat would result for the attraction of ducks. The rest of the area was preserved in its existing state of introduced and native grasses for nesting cover.

In 1967, six broods of ducks were produced on the area. In 1968, 16 broods were observed using the site —six canvasbacks, five mallards, three blue-winged teal, one pintail, and one redhead. Observations this spring indicate that the waterfowl use will increase again.

With growing demand for hunting sites, the Steiners decided that fee hunting might have possibilities. In fall 1967, a $1,500 renewable lease was drawn up and signed for hunting privileges in the newly developed area. The lease was renewed by the group in 1968. "We've been paying taxes on this wasteland for years and never have received any return from it until we put it into wildlife," Erwin Steiner said. The Steiners say that wildlife, as a farm byproduct, can yield a profitable income and at the same time assure the presence of wildlife for the future.

Cost of the Steiner development, including materials for structures and blastouts, was about $2,580, of which 80 percent was paid through Rural Environmental Assistance Program cost-sharing. Initial investment by the Steiners was $516. The formerly unproductive land showed a profit of nearly $1,000 the first year.

Biologists of the Bureau of Sport Fisheries and Wildlife in Fergus Falls and the Soil Conservation Service helped the Steiners plan the development. The Steiners, encouraged with the results in duck production and financial return from hunting leases, have requested SCS to study feasibility of another waterfowl impoundment in the area. ♦

Ducks enjoy Erwin and Jack Steiner's "blasted" pond.

If it's a marsh use it like one

By Robert S. Pollock
Soil scientist, SCS, Hebron, Nebr.

How do you tell a marsh from a mudpuddle? It's not as simple as it sounds, as wetland enthusiasts and soil scientists in Nebraska's Central Plains can tell you.

This part of the Great Plains is marked by many shallow depressions that have no drainage outlets. These are areas of low relief whose gently sloping soils form basins that trap rainwater. The rainwater basins range in area from a few acres to several hundred acres. Some basins are dry; others contain lakes 5 or more feet in depth. Many of them have developed into wetland habitats that contain typical marsh-dwelling species of plants and wildlife. Many other basins are used for pasture or cropland. Some are being used to trap and recover irrigation tailwater. Still others have been eliminated by tile drainage or by highway fills.

SCS soil scientists faced some thorny problems in classifying the soils of these basins to aid in land use decisions. Earlier soil surveys had identified more than half of the basins as having Scott soils, a type which is now classified as suitable for some cultivation. It was apparent that not all of these interpretations were correct. The scientists decided that a study was needed.

During the spring and summer of 1970, SCS soil scientists examined more than 900 of the basins in an 18-county area. They found that 163 of them, comprising 11,820 acres, actually contained marshlands or intermittent lakes.

Marshland in the lowest elevations is class VIII—best suited for wildlife. SCS conservationists, in helping landowners decide on land use, point out these areas and encourage landowners to dedicate the land to that use. And they can give technical assistance in developing high-quality wildlife habitat on the wet land. Cost-sharing is supplied by the Agricultural Stabilization and Conservation Service.

A common soil pattern for basins where there is marsh is that the lowest elevations are surrounded by an area of Scott soil. Then on slightly higher, better drained position the soil will be Filmore, then

Wild creatures (above) and man can benefit from use and improvement of Nebraska's upland marsh areas (right).

Ralph Hawkins enjoys a morning in his marsh.

up to either Butler, Crete, or Hastings. The latter are usually class II or better, whereas Filmore is class III-w, both suitable for agriculture with some limitations.

Where soil, water, and plants are properly classified, it clears up many questions about wet lands and their value for wildlife.

Competition for land and pressures on agriculture are great. But state and federal agencies working together can help landowners in Plains soil and water conservation districts share more of their land with wildlife.

Ralph Hawkins of Hebron, Nebr., is one who is glad to share with wildlife. He and John Ells and Dr. C. M. Parker have developed hunting grounds on an 80-acre tract, 65 acres of which is marsh. They raised small islands in the marsh and built concrete blinds on them for use when the water is deep. Other times they use barrel blinds. On the Hastings soil, class I and II-e, they planted 500 redcedar trees to tame the winds and serve as sanctuary for thousands of songbirds. Near the edge of the marsh they built a cabin with a porch that slopes upward from the door so they can see out over the marsh.

"You don't have to have a gun to enjoy ducks," Hawkins says. "The language they use when coming in to land, the graceful way they glide into the marsh, and the colors they display are all added benefits." Both sportsman and artist, Hawkins often trades his gun for a sketch pad. He did so to create the ink drawing that helps tell this story.

"I've been hunting ducks since the days when we used live decoys," he recalled. "Years ago a Nebraska youth could hunt free anywhere. Then the fee days came along, and after that the lease agreement." Hawkins was a hardware merchant in Hebron for 44 years and grew up in the heart of the Central Plains at Grafton. He has seen the whole transition, both as sportsman and supplier, from good hunting to poor and back again. ♦

Bucks and beef

By Billy Craft
Biologist, SCS, Minden, La.

Wildlife farming is as much a part of Dr. N. D. Morgan's 2,400-acre ranch near Minden, La., as cattle and timber are.

His game management area is rapidly becoming a favorite hunting spot for sportsmen in northern Louisiana.

"One of the largest bucks killed in this area—242 pounds live weight—was taken on my farm last season by a local hunter," Morgan said.

Morgan, an agronomist with the American Potash Institute, first bought the ranch with the intention of raising beef cattle. "However, I soon realized that my mixed hardwood-pine forest and open fields also were suited for a new and untapped source of farm income," he said. His wildlife project was started about 5 years ago.

Deer are the primary game sought by the hunters who annually lease Morgan's farm for hunting rights. Since 1964, the annual harvest has increased from 10 legal bucks to 24 this season. Nineteen of these bucks were killed during the 9-day still hunt from November 8 through 16. Other game animals hunted on the farm include squirrel, dove, quail, and rabbit. Wild turkeys have been released by the Louisiana Wildlife and Fisheries Commission on two nearby locations.

Through the Dorcheat Soil and Water Conservation District, Ray Smith, state SCS biologist from Alexandria, and the Minden SCS staff helped Morgan plan an income-producing hunting enterprise.

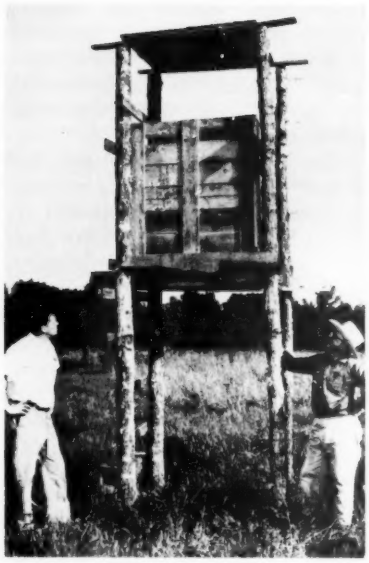
Morgan cleared "shooting lanes" 100 feet wide and a quarter mile apart on 823 acres of mixed hardwood-pine woodland. The lanes vary in length. They go north and south, east and west in a checkerboard pattern. The openings have been planted with white clover, fescue, and bahiagrass. Narrow strips of lespedeza have been planted near the edges of the woods for bobwhite quail. These wildlife openings serve as shooting lanes and also supply the "edge effect" that most kinds of wildlife need. The Agricultural Stabilization and Conservation Service provided cost-sharing assistance on seed and fertilizer.

Honeysuckle is common in the woodlands, and Morgan says this is the number-one browse plant on his farm. In fact, plans call for planting root sprouts and seeds of honeysuckle in small openings in the woodland.

Sixty-five elevated deer-shooting platforms are built at intervals along the lanes to provide an added measure of safety in addition to hunting convenience. Before going to his stand, each hunter stops by the clubhouse and places his name tag on a map of the area on which the stands are located. Since all hunting is from the stands, a quick glance reveals the location of other hunters.

"Our hunting system is possibly the safest there is," Morgan empha-

Quail (left) and deer are just two of the popular crops on Dr. Morgan's farm.



Dr. Morgan (right) and the author view one of the elevated shooting stands that add safety and convenience.

sized. "For this reason we have many hunters who come here to train their sons."

There are now 30 members from the Shreveport area who pay fees for themselves and their families to hunt and fish on Morgan's land and water. His first year of operation was in 1964. Business has picked up each year since, he said.

As testimony to Morgan's good management, almost all of the sportsmen who hunted there this year have either killed a deer or at least had a shot at one.

There are nine small, well-stocked recreation lakes on Morgan's ranch. They range in size from ½ to 3 acres and yield large catches of bass and bream to fishermen.

Morgan also sends prime beef to market each year from his 150 head of cattle. They graze some 500 acres of improved pastures. His woodland yields a dual crop—wildlife and choice trees.

Dr. Morgan's farm is a fine example of how land can be managed for wildlife and outdoor recreation and still produce beef and timber. ♦

Mark of a rancher

Increased ranch income, good grass and cattle, abundant wildlife, and two conservation awards mark Desiderio Trevino's ranching progress in southern Texas.

Trevino won the Webb Soil and Water Conservation District's Conservation Rancher Award in 1966 and the American Society of Range Management's Grazing Excellence Award in 1970.

Trevino started managing the 5,000-acre ranch on the northeast bank of the Rio Grande River in 1961. The salty clay soils of the ranch supported a dense stand of chaparral brush and little grass. Poor condition and low productivity of the rangeland had resulted from a long history of heavy grazing use. Explorers and travelers from Mexico crossed the Rio Grande and grazed their animals in the vicinity of the ranch as early as 1690.

In an effort to get more out of his rangeland, Trevino signed a cooperative agreement with the Webb District in May 1963. With help from a range conservationist of the Soil Conservation Service, the young rancher developed a complete conservation plan. The plan was designed to develop, properly use, and protect the soil, water, plants, and wildlife on the ranch. It required a drastic change in ranch operation.

Trevino first reduced his cowherd by half to bring livestock into balance with forage being produced. Next he built 6 miles of cross fence to give him better control of grazing. At the same time, he began a vigorous brush control and range-seeding program. He has rootplowed and seeded more than 1,000 acres of brushland and chained an additional 1,800 acres. These practices enabled him to carry out a program of sound grazing management, including regular deferment and proper grazing of all pastures.

Brush control and range seeding have been done in block strips and natural patterns to preserve wildlife habitat. In 1961, hunters who held a season hunting lease on the ranch harvested six whitetail bucks. In 1969 the ranch yielded 12 bucks and a good quail harvest.

Calves were more plentiful, too —an 85-percent crop of 450-pound calves in 1969 compared with a 40-percent crop of 300-pound calves in 1961. In all, the ranch net return for 1969 was more than twice what it was in 1961.—RAYMUNDO T. MARGO, JR., *district conservationist, SCS, Laredo, and* DONALD T. PENDLETON, *range conversationist, SCS, Bryan, Tex.* ♦

Desi Trevino looks at the buffelgrass that now graces his ranch instead of pricklypear and brush.

Farm planning in Wisconsin . . .

More conservation by the dozen

In the Oconto Soil and Water Conservation District in Wisconsin, new district cooperators are taking to conservation in bunches, perhaps a dozen at a time.

The district leaders like it that way.

Some of the groups have been brought into the conservation fold because outlets for the disposal of excess surface water are sometimes hard to locate on a single farm. Others were formed because of common problems or opportunities in resource development. And still others . . .

There's the Morgan group. The interest of some of them was touched off by a training program at the Northeast Wisconsin Technical Institute at Green Bay.

Slides on soils caught the attention of several young farmers from the Morgan area. Their study of the soils in their area led to discussions of needed conservation work, broad resource management, and development opportunities.

A series of source conservation planning meetings followed. The group agreed on a goal of a conservation plan for each farm.

At the second meeting each member received a folder containing an aerial photo and a soils map of his land. Step by step each landowner began planning for the use and conservation treatment of his land.

By locating roads, buildings, and other landmarks he "found himself" on the photo. Then he outlined his fields and designated present land use with symbols—"C" for cropland, "W" for woods, "P" for pasture. An appropriate symbol indicated his fences. Each field showed approximate acreages.

Based on knowledge of the land gained through working with it and studying the soils information, each landowner selected the needed conservation practices. For wet cropland the decision was easy—it needed surface water-disposal systems. But where were the outlets and were they deep enough? Could they be designed to protect and maintain the wildlife wetland habitat? What was the best erosion control on upland fields?

Since these questions were hard to answer without observing land conditions, the group unanimously decided they needed some on-the-land help. Before the meeting ended, each member made an appointment with Soil Conservation Service specialists assisting the Oconto Soil and Water Conservation District.

Out on the farm specialists and owners reviewed soil resources and discussed preliminary decisions on conservation treatment. They dealt with specific problems as they found them. Sandy knolls or steep, eroding cropland fields were planned for trees with additional help from the Wisconsin Department of Natural Resources and the Agricultural Stabilization and Conservation Service.

Little Suamico and Pensaukee rivers flow through farms of the group. Here was an opportunity to improve a warm-water fishery. First, the banks needed riprapping, sloping, seeding, and fencing to control bank erosion and reduce sediment.

Two members made plans to work on this together. They hired a contractor who had access to a limestone quarry and could complete the necessary sloping and rock placement. The following fall a neighbor joined the group and protected the banks of the stream on his land.

Where gullied draws were washing away soil, the Morgan group decided to seed grassed waterways. They planned windbreaks around farmsteads and along roads to cut down on snow accumulation and heat loss from their homes. They

Stabilizing John Bergh's streambank will save his barnyard and improve water quality for people and wildlife.

set aside acreage for wildlife, located pond sites, and noted timber management needs. Designated drainage outlets became community projects serving two or more farms.

Overall costs of the conservation work were lower because the contractors did not have to move in and out of small jobs, thereby avoiding moving costs that saved up to $50 or more per farm. In addition, when these larger jobs were offered to contractors, the unit bid price was lower—a direct saving to landowners and also to the Government when cost-sharing was involved. When SCS specialists could provide technical assistance on one group job, it was a saving of time—an indirect saving to the landowner as a taxpayer. Whether riprapping a streambank or providing an outlet for a community drain, working in groups has paid in Oconto County. —GLENN D. GARVEY, *district conservationist, SCS, Oconto, Wis.* ♦

Conservation in action...

A dam for all reasons

South Dakota

A township road going to pieces —farmers low on livestock water—and severe flooding on lowlands. The answer? A combination road-dam, water-retarding structure, and wildlife development, the first one in Grant County, S. Dak.

It's called the Rude-Hasvold Dam, after the two Grant County Conservation District cooperators whose interest in more livestock watering facilities led to the group project.

About 13 acre-feet of water will be stored in the 3-acre reservoir for livestock and other uses on the Bud Rude farm. A pipe runs through the dam embankment to provide water for livestock on the Verlin Hasvold farm.

The old township road's narrow top and steep side slopes were eroding, and a concrete culvert was badly in need of repair.

Now the top of the dam, which serves as the road, is 32 feet wide —much wider and safer than the old road fill. The roadway is 8 feet higher. And the county commissioners saved the cost of culvert repair.

The road-dam also will help reduce downstream flooding. The storage area of the reservoir at the emergency spillway of 102 acre-feet will help stabilize the grade of the watercourse.

Three-fourths of the 2,000-acre drainage area is grassland in good condition, the rest is in small grain under a conservation cropping system. Little erosion will result; but the dam is designed to trap whatever sediment is produced, adding pollution control to the project benefits.

Hunting, fishing, and other recreation are other benefits. The reservoir will serve as a watering station for upland game. Ducks and geese will enjoy it, too, and it will be stocked with fish.

SCS made a feasibility study for the group project and aided in design of the dam, and the Agricultural Stabilization and Conservation Service provided cost-sharing.—HAROLD L. STOLTENBURG, *district conservationist, SCS, Milbank, S. Dak.* ♦

Maine

Flatpea—new plant for wildlife

Seeding abandoned logging roads to herbaceous plants such as flatpea can provide excellent wildlife habitat, curtail erosion, and suppress

Sod is being stripped from area to build road-dam.

Road-dam has been completed.

Flatpea on an old logging road gives wildlife an edge—and cuts erosion.

woody growth to keep the road in good condition for future harvesting of wood.

In June 1967, on the University of Maine Experimental Forest in Old Town, a quarter-mile of inactive logging road 12 feet wide was seeded to NY1157 Flatpea (*Lathyrus sylvestris*). The seed, obtained from the SCS Nursery at Big Flats, N.Y., was broadcast on a disked soil seedbed at a rate of 60 pounds an acre. Before seeding, experimental plots were treated with various combinations of lime and fertilizer. The Plaistead stony loam and stony silty clay loam were tested before treatment and found to be acid with a pH of 4.7. Later soil tests showed the lime treatments raised the pH to 5.5.

By November 1968, 10 of 17 plots had stands of flatpea varying from fair (30-49 percent ground cover) to excellent (80-100 percent ground cover). No tree seedlings were found on these plots. The poorly established stands (less than 30 percent ground cover) were all found on poorly drained, wet soils. Sedge, alder, and willow were widespread on these wetter plots. Flatpea growth was more vigorous and lush on unshaded plots although successful stands were established in shaded areas. Successful pea stands were found on plots with and without fertilizer treatment.

Use of flatpea leaves for food by ruffed grouse in August and November was verified.

Additional plantings of flatpea on the Bradford Wellman property in Dixmount, Maine, are well established. The plant has been used on a spoil bank from a large pond to create a border between a grassland opening and a wooded area. Wood roads have also been successfully seeded on the Frye Mountain State Wildlife Management Area in Montville.

In the White Mountain National Forest in New Hampshire, seedings similar to those on the Maine Experimental Forest were planted in 1967. Forest Service Biologist Gary Carr reported use by deer the following year. These plantings have developed into dense stands of flatpea. The viny growth suppresses brambles and small-tree seedlings.

Flatpea also is useful on dry, gravelly soils such as roadcuts and borrow areas. It can help speed the return of waste areas to productive wildlife habitat.—SANFORD D. SCHEMNITZ, *associate professor, Wildlife Resources, University of Maine, and* DAVID ALLAN, *biologist, SCS, Orono, Maine.*

Illinois

Lake Dongola is ready in the nick of time

Completion of Lake Dongola, near Dongola, Ill., was not official on the night of the fire, August 26, 1970.

But its water—official or not—helped to control a blaze that threatened the village.

Mayor Leo H. Keller reported that fire companies of Dongola and three neighboring towns pumped 350 to 400 gallons a minute for 3 hours in containing the fire. He said the town's former supply would have been exhausted in 30 minutes.

The fire destroyed a downtown produce company.

The 70-acre Dongola lake is a part of the Little Creek Watershed Project. The community provided funds for adding municipal water to flood-prevention features of the project. Assistance came from the Soil Conservation Service and Farmers Home Administration. Sponsors were the Union and the Pulaski-Alexander soil and water conservation districts and the town of Dongola.

The lake's official completion date was September 10.—HOWARD W. BUSCH, *state conservationist, SCS, Champaign, Ill.*

California

A plant for stock and wildlife

Lana vetch has many uses in the foothill areas of California's Sacramento Valley—for grazing by cattle and sheep and use by several kinds of wildlife.

After 8 years of use by cooperators of the Elk Creek Soil Conservation District, Lana vetch has proved itself. They have seeded it in many ways, broadcasting, drilling, and scattering it with hay and livestock. They have grazed it with several kinds of livestock, at different times of the year, and harvested the seed with and without oats, barley, and wheat, and have grown it on a wide variety of soils.

Lana vetch, an annual legume, is a selection of woolypod vetch (*Vicia dasycarpa*) developed by the Soil Conservation Service Plant Materials Center at Pleasanton, Calif. Its most desirable feature is its ability to produce forage and a good seed crop even in years when late spring rains do not occur.

One of the best uses for this plant is permitting it to mature for a dry summer livestock feed. Because of its high-protein content, it is a high-quality feed during the long dry forage season of California range. With average climatic and soil conditions, dry forage yields from Lana vetch in this area range from 4,000 to 7,000 pounds an acre, about

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twice the production that can be expected from native annual grasses.

Lana vetch produces 50 to 100 pounds of nitrogen an acre which is available to the companion grasses that grow through the winter rainy season. Thus, the early growth of the grass, as well as the vetch itself, is an important source of early green feed. Unlike some other legumes, Lana has never been known to cause bloat.

Livestock will not eat Lana vetch when it is in the flowering stage, thus permitting a good seed crop.

Lana, like other vetches, makes legume hay approximately equal to alfalfa in feed value. Cutting and baling vetch can be difficult. Oats or barley or annual grasses mixed with vetch make haying operations much easier. Two to three tons of hay to the acre can be harvested early, and what is left will be readily grazed by livestock. Seed can be harvested easily with an ordinary grain harvester.

Several forms of wildlife utilize Lana vetch. Deer eat vetch mainly during the summer and fall months when other feed is sparse and of poor quality. This is a critical period in the life cycle of spring-born fawns. Quail, doves, and other birds eat large quantities of the seed.

Controlling weedy plants by overtopping and smothering them is another beneficial use of the multiple-purpose plant. — A. LLOYD FRANCIS, JR., *district conservationist, SCS, Willows, Calif.*

Nebraska

From homestead to showplace

Ponies, peafowl, and nature's wild creatures share a pond and other comforts on a farm managed by the head of the Nebraska National Guard.

Adjutant General Lyle A. Welch and his wife have spent many hours and dollars to ensure adequate food, cover, and water for all denizens of their Melody Meadows Pony Farm near Milford. They have literally had their hands in much of the conservation work done on their 80-acre farm (part of a half-section settled by the General's grandfather in 1880).

Before the couple moved there from Lincoln in 1959, the creation of a conservation showplace had already begun. Terraces and grassed waterways were installed in 1956 with the help of the Seward County Soil and Water Conservation District. The next year a pond was added and stocked "mostly for the grandchildren." General Welch and his wife dig out weeds with a spade rather than risk getting chemicals into the pond (no herbicides are used on the farm).

After the pond was completed and before a new home was built to replace the original house on the Welch homestead, the General asked SCS District Conservationist Vince Jacobson to help him tackle the next phase of his campaign.

They set aside an acre of class III land near the pond and ordered planting stock through the Nebraska Game and Parks Commission. The Welches set every one of the thousand or more trees and shrubs by hand in contoured rows.

Multiflora rose, bear berry, Nanking cherry, Russian olive, honeysuckle, and cotoneaster furnish cover for game. The Welches also planted a pine windbreak to trap snow, break the force of the wind, and attract more wildlife.

"We get closer to our Maker out here on the farm," Mrs. Welch says. Anyone who views the new beauty and order she and her husband have brought to the old family homestead would agree.—RAYMOND C. KUBIE, *assistant area conserationist, SCS, Lincoln, Nebr.*

Pennsylvania

Room to rent for ducks

Manmade marshes in Union County, Pa., are becoming popular rest stops for waterfowl in the Atlantic Flyway. The marshes and nearby food plots are proving to be ideal areas for nesting and feeding. Many ducks like the marshes so much they spend summer in the area—they stop in the spring to raise their young and stay until fall.

Maker of the new homes for wildlife is Land Manager Don Watson of the Pennsylvania Game Commission who cares for 3,000 acres of state game lands (formerly farmland used by the U.S. Government during World War II). Six years ago duck hunting was unheard of on this area, Watson said. Now, opening day attracts scores of hunters, and the take is good. Spring and fall population of blacks and mallards there runs between 300 to 400.

Watson coaxes the wily birds off the flyways and keeps them through hunting season by providing them with the right kind of habitat—including water impoundments to create large shallow areas of water. The ponds must be engineered, he says, so that the water level can be drawn down in the spring and raised in the fall. Duck food is planted in the drawn-down area, and as it matures the ponds are refilled so the ducks can harvest the food.

There are 60 acres of shallow water scattered throughout the area. Another 100 acres of water is included in the conservation plan for the 3,000 acres developed with the help of the Soil Conservation Service.

Watson works closely with SCS in planning and establishing the marshes and food plots. They are turning this former farmland into a new use—more ducks and better hunting for Pennsylvania's growing army of nimrods.—CHARLES SLATON, *public information officer, SCS, Harrisburg, Pa.* ♦

Meetings . . .

Youth and environment are ASCD spotlights

"Dare to Care/Dare to Act" will be the theme of the 26th annual conference of the Association for Supervision and Curriculum Development March 6-10 in St. Louis, Mo. The theme expresses ASCD's commitment toward social justice, effective education for all, an ultimate in humanness, and development of awareness and skills to attain these goals.

One of the main topics to be discussed in "action laboratories" will be "The Education Environment: A Wasteland" involving population explosion, waste of natural resources, pollution, and waste of human potential. Other topics include "Drug Usage Among the New Youth," "Contemporary Youth Ideologies," "Racism," and "Value Conflicts Underlying Curriculum Development."

Special TV programs will present "The Mexican American in Public Education," "The American Indian in Public Education," and "A Student Forum on Educational Issues."

Important issues face Pulpwood group

The American Pulpwood Association's annual meeting will be March 29-31 in Atlanta, Ga. Plans are to discuss the most important issues facing the pulpwood industry during the coming year. Manufacturers of pulpwood logging equipment will bring forth the latest developments in their field.

NWF discusses environmental quality

The National Wildlife Federation at its 35th annual meeting March 5-7 in Portland, Oreg., plans to devote one full day to "Environmental Quality—Breakthrough or Breakdown?" Topics include: "The Student Council on Pollution and Environment;" "Oregon's Environmental Concerns;" "Skylab—Monitoring in Space;" "Environmental Challenges of the Seventies;" "The Legal Approach to Environmental Problems;" and a summary.

Many current problems will be handled by subcommittees on environmental quality, forest resources, fisheries, minerals, natural area, public lands, soil conservation, water conservation, and wildlife.

NWF has scheduled a pre-meeting tour to Hood River, Columbia Gorge, and Multnomah Falls and a post-meeting tour to Hawaii.

Clean water week

Public Law 91-594, approved December 28, 1970, proclaims the first full calendar week in May of each year as "Clean Waters for America Week."

ASPO to highlight urban growth policy

The 37th annual conference of the American Society of Planning Officials will be held in New Orleans, La., March 27-April 1.

Major addresses and end-of-the-conference colloquy will consider the goals, mechanics, and intergovernmental relations of urban growth policy. Several sessions and exhibits will focus on the issues of environmental quality.

Plans are for individual sessions to examine basic objectives and procedures for revenue sharing, population distribution, the 1970 Census, and transportation planning.

Environment heads AGC program

The Associated General Contractors of America will hold its 52d annual convention March 5-11 in San Diego, Calif.

Environment will be one of the major discussion topics. Others include: Building specifications, continuing education, equipment expense and tax, ethics and trade practices, industry advancement, research, and labor.

Dates and places

March 5-7, National Wildlife Federation, Portland, Oreg.
5-11, Associated General Contractors of America, San Diego, Calif.
6-10, Association for Supervision and Curriculum Development, St. Louis, Mo.
7-8, The Wildlife Society, Portland, Oreg.
14-20, National Wildlife Week.
16-19, National Rivers and Harbors Congress, Washington, D.C.
26-30, National Science Teachers Association, Washington, D.C.
27-Apr. 1, American Society of Planning Officials, New Orleans, La.
29-31, American Pulpwood Association, Atlanta, Ga.

April
13-14, Alaska Forest Fire Council symposium, Fairbanks, Alaska.
21-24, Urban Land Institute, Portland, Oreg. ♦

Making use of crop wastes

Agricultural Research Service scientists are continually searching for ways to use crop waste materials that ordinarily are just left in the field for residue. One result: A new process for obtaining oil from celery residue. The process, developed at the ARS Fruit and Vegetable Products Lab., Winter Haven, Fla., yields oil that has a better flavor and is more potent than oil extracted from celery seed or made synthetically. Celery leaves, tops, and outer ribs are heated to drive off 10 to 20 percent of their moisture, which carries with it the volatile celery oil. The vapors are trapped, and the oil is separated from the moisture. About 5 ounces of oil is obtained from a ton of raw material, but these 5 ounces are enough to flavor a ton of dehydrated celery. Celery is one of the Nation's top 10 vegetable crops with an annual farm value of $60 million. From 10 to 15 tons of celery plant per acre is left in the field after harvest. ♦

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Review

One-third of the Nation's Land. BY THE PUBLIC LAND LAW REVIEW COMMISSION. *1970. (Govt. Print. Off.). 342 pp., illus. $4.50.*

For longer than the 5 years it took to prepare it, the Public Land Law Review Commission's report to the President and the Congress will be the subject of study and center of debate for groups concerned with the Nation's land resources.

The study initiated in response to Public Law 88-606 provides perhaps the first complete inventory of federally owned lands and surely the most exhaustive collection of facts about them.

As the title proclaims, they embrace a third of the Nation's total land area: 755 million out of the 2.3 billion acres in the 50 states.

The 25-member commission headed by Representative Wayne N. Aspinall, served by a staff and an advisory council, contracted for research studies that resulted in manuscript reports on 33 individual subjects (*Soil Conservation,* Sept. 1968).

The resulting report distills from the research findings, public hearings, and staff work an informative description of the timber, range, mineral, water, fish and wildlife, agricultural, marine, and outdoor recreation resources of the Federal lands. It discharges well the commission's assignment to make "a comprehensive review of (public land) laws, and the rules and regulations thereunder" as well as "the policies and practices of the Federal agencies charged with administrative jurisdiction over (public) lands insofar as such policies relate to the retention, management, and disposition of those lands (in order) to determine whether and to what extent revisions thereof are necessary."

It presents 17 general policy recommendations regarding all public lands and 137 specific recommendations pertaining to particular aspects (like planning future public land use) or segments (like timber resources) of the public lands.

In the months and years ahead, conservationists and concerned citizens will need to become familiar with this landmark document. There is no substitute for studying the original publication—B.O.O.

Introduction to the Study of Soils in Tropical and Subtropical Regions. BY P. BURINGH. *1970. 2d ed. Centre for Agricultural Publishing and Documentation. Wageningen, Netherlands. 99 pp. illus; paper. 15Dfl.*

The book is short and readable for beginners. It gives brief summaries of some of the principal kinds of tropical and subtropical soils in some recognized systems of classification. The "agricultural" (farming) evaluations are largely based on original nutrient supply rather than response to management.

This edition corrects some errors of the earlier one. The author, however, fails to emphasize the nutrient cycle under tropical forests, which accounts for successful primitive shifting cultivation. Only a small part of the great literature on these soils is tapped.—CHARLES E. KELLOGG, *deputy administrator for soil surveys, SCS, Washington, D.C.*

A Strategy for Plenty. BY FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS. *1970. FAO, Paris (Distr. by UNIPUB, New York). 63 pp., illus. $1.50.*

An attractive little album (8 by 8 inches) presents a popular digest of FAO's Indicative World Plan for Agricultural Development, illustrated with handsome photos and colorful charts.

This booklet will appeal more to the casual reader than would the lengthy detailed report (*Soil Conservation,* Feb. 1971). It will serve a good purpose in carrying to the average citizen the important story of foreign agricultural development.—B.O.O.

New publications

Assistance Available From the Soil Conservation Service. *1970. USDA Agr. Inf. Bull. 345. 29 pp., illus.* Outlines SCS's technical aid through conservation districts to individuals, groups, organizations, cities and towns, and county and state governments. Explains help available through small watershed and Resource Conservation and Development projects; the Great Plains Conservation Program; soil surveys; conservation needs inventory; water-resource activities and river basin investigations; and other activities.

Urban Renewal: One Tool Among Many. *1970. Report of the President's Task Force on Urban Renewal. 15 pp.* Lists objectives: to enhance the efficiency of land use, improve the fiscal and economic conditions of the community, and decrease the threat of balkanization and polarization of American society. Makes recommendations on involvement of the Federal Government in urban renewal.

Air Pollutants Affecting the Performance of Domestic Animals, a Literature Review. BY ROBERT J. LILLIE. *1970. USDA Agr. Hbk. 380. 109 pp. $1.* Reports on cattle, sheep, goats, swine, horses, chickens, turkeys, ducks, geese, pigeons, Japanese quail, dogs, cats, rabbits, and honey bees.

Glossary of Soil Science Terms. *1970. Soil Science Society of America, 677 South Segoe Road, Madison, Wis. 53711. 27 pp. $1.* Includes two appendices: Appendix I, Terminology in Clay Mineralogy, and Appendix II, Soil Classification.

Soil surveys

Virgin Islands of the United States. BY LUIS H. RIVERA, WAYNE D. FREDERICK, CORNELIUS FARRIS, EARL H. JENSEN, LYLE DAVIS, CECIL D. PALMER, LYLE F. JACKSON, AND WILLIAM E. MCKINZIE. *1970. 78 pp., illus.; maps 4 inches to the mile (1:15,840).*

Lake County, Illinois. BY JOHN E. PASCHKE AND JOHN D. ALEXANDER. *1970. 82 pp., illus.; maps 4 inches to the mile (1:15,840).* Soils surveyed by L. J. Bushue, R. H. Herman, K. C. Hinkley, E. E. Kubalek, R. H. Newbury, J. E. Paschke, H. R. Sinclair, and P. S. Watters.

Shelby County, Tennessee. BY E. C. SEASE, R. L. FLOWERS, W. C. MANGRUM, AND R. K. MOORE. *1970. 53 pp., illus.; maps 4 inches to the mile (1:15,840).*

Shawnee County, Kansas. BY WALTER ABMEYER AND HOWARD V. CAMPBELL. *1970. 77 pp. illus.; maps 3.17 inches to the mile (1:20,000).*

Recon . . .

Wheat, cotton, and feed grain land diverted from production may be used as wildlife habitat or wildlife food plots if the general public is given access for hunting, trapping, fishing, and hiking. This is part of a set-aside program established by the Agricultural Act of 1970. (To be eligible for Federal payments, farmers must set aside acreage determined by the Secretary of Agriculture). Under the Cropland Conversion and Greenspan long-term retirement programs continued by the Act, producers may be paid for permitting free public access to acreage devoted to approved wildlife practices.

Communications technology is the key to achieving improved environmental quality for future generations, according to Dr. Peter C. Goldmark, president of CBS Laboratories, Stamford, Conn. "People in smaller communities could live and work at great distances from each other," Goldmark says. Instead of piling all its men and machines in one metropolitan factory, a company could split operations geographically. Employees and management at various locations would be linked by a broadband communications network. The same system could carry mail, educational and cultural programing, and entertainment to wall-to-wall home receiver screens. Goldmark's "rural society" concept is already beyond the pie-in-the-sky-stage. Connecticut and Georgia have plans for projects using highways of cables that will allow businesses to communicate by rapid, facsimile transmission, picturephones, and other devices.

Land use change projections . . .

"Though a land shortage is not imminent, some of the bastions of California's agriculture will have to make room for more people needing places to live and work . . ."—officials estimate that population will nearly double by the year 2000 (from 20 million to date to 38 million in the future). The land use picture, foreseen by researchers at the University of California at Davis (in cooperation with the Economic Research Service) looks like this: Land put to urban uses will increase from 2 million acres (1960) to 3.6 million by 1980 and 4.8 million by 2000. Through 1980, 30 percent of the increase will be on prime agricultural land; 40 percent, less productive; and the rest, unsuited to cultivation. So far, so good. By 2020, who knows?

. . . and objections

Some Illinois farmers have taken on a large power company in an effort to keep their class I land from becoming the bottom of a 7,000-acre cooling lake for a nuclear power plant. The trouble started right after the farmers helped defeat a county zoning plan that would have designated the land in question "agricultural." The company already has acquired almost 60 percent of the farmland in question. But the farmers say: "Today with the mood of the country concerned about protecting our environment and assuring an adequate food supply, we have a chance." They want to shift the lake site to a nearby less productive area.

Relationships between habitat and song bird population in an urbanizing area are being studied in the new town of Reston, Va. Preliminary research sponsored by the Virginia Cooperative Wildlife Research Unit and the Southeastern Forest Experiment Station is being carried out by a master's degree candidate from Virginia Polytechnic Institute. The study was set up in response to residents' inquiries; Restonians wanted to encourage birds other than starlings and sparrows who move in as the area develops. Vernon Walker, director of Reston's Nature Center, thought that habitat variation might be a key to influencing the diversity of wildlife. Residents help the graduate student by reporting bird count results and data on backyard bird feeding stations.

Wanted: soil conservationist for 2-year assignment in rural Madagascar. The Peace Corps is expanding its dragnet for volunteers willing to take overseas assignments related to environmental quality. Developing nations are making more requests for experts to help deal with side effects of improved standards of living. Although in the past Peace Corps has placed groups of volunteers, the 10-year-old agency is seeking persons eligible for individual research or management positions. Ecologists, marine biologists, landscape architects, and park planners are a few of the professionals now in demand. Applicants for natural resource work file standard Peace Corps forms that are processed mainly through the Smithsonian Institution. Improved communications with American graduate students also are being channeled through the Smithsonian.

Catfish on every plate

"Catfish is very definitely an answer to the world's shortage of food. We need a protein species that can be grown in large densities and survive these densities. The catfish is among the few which have that characteristic. Carp and Talapi are other types of fish currently being used in Israel, the Philippines, and Japan. However, neither of these has the taste of catfish. (Catfish is more palatable than trout, according to the Bureau of Commercial Fisheries.) Catfish can very definitely contribute to providing protein to our starving people around the world."—PORTER BRIGGS, *executie secretary of the Catfish Farmers of America.*

From the Administrator:

What it's worth to us

Land, water, and wildlife. All are closely related; all interact, so that to change one component of the trio is to change the other two as well.

No one questions the importance of land or water to human life. But to some people, the value of wildlife—its contribution to our lives in the 20th century—is more difficult to understand or appreciate or describe.

There is the pleasure that millions of Americans receive from hunting, fishing, or birdwatching.

There is the esthetic appreciation of a walk in the woods, a morning in the marshes, an hour observing wild things at play. Wildlife has much the same social utility as art or music . . . the ability to surprise, delight, reveal.

There is the value of wildlife as a measure of what we are doing to our common environment. If we create conditions that are lethal to some wildlife species, we should take the warning that mistakes are being made—because man as well as wildlife may be in danger.

And finally, there is the value of wildlife as part of the "genetic pool" of our natural world. Exterminating a species or radically upsetting the ecological balance for others may have consequences that we cannot predict now.

Recently, the American people have become more concerned about the care and improvement of their entire natural environment, including wildlife. An aroused public has helped bring about new laws, new programs, new attitudes.

The Soil Conservation Service has always been concerned with the effect of its work on wildlife. We know that the majority of wildlife in this country today lives on, and from the products of, the Nation's farms and ranches and privately managed ponds and marshland. Soil and water conservation work over three decades has helped assure the necessary food, water, and cover.

And action taken specifically to aid wildlife has made thousands of farms and ranches even better wildlife producers. Fish and wildlife measures are an important part of the action in watershed projects and Resource Conservation and Development projects.

Helping landowners and communities locate areas best suited for wildlife . . . adapting cropland practices to the job of creating ideal soil and water conditions for wildlife . . . selecting plants to suit the special needs of wildlife—all are part of the "kit bag" of tools used by SCS working through 3,000 local conservation districts.

SCS personnel throughout the country have a direct interest and involvement in the quantity and quality of the Nation's wildlife resources. They can and should be alert to changes in the use of land, water, or vegetation that may affect wildlife species. They should have close working relationships with state fish and game agencies and other authorities so that facts about those changes can be given to them.

We continue to seek further opportunity to improve man's environment in meaningful ways. Positive actions of thousands of SCS employees and conservation district leaders are helping increase wildlife and the chance for people to enjoy it.

Kenneth E. Grant

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Wind cave at its best

The National Park Service, cooperating with Custer County Conservation District, has developed a conservation plan on the 28,059-acre Wind Cave National Park in the Black Hills of South Dakota.

Its purpose?—to help keep the park's soil, plant, and animal resources a showcase of good management for the million or more visitors each year.

Wind Cave National Park, created in January 1903, was the seventh national park in the United States. Visitors to the park see unspoiled rolling prairies and foothills with bison, pronghorn antelope, prairie dogs, and other wildlife in their natural habitat, essentially as seen by our pioneers crossing the Great Plains.

Wind Cave is the predominant geologic feature, with 10 miles of passages of crystalline mineral deposits, including boxwork and frosting.

SCS conservationists helped inventory range and woodland conditions, made a soil survey, and recommended conservation practices. Forty-four soil mapping units were grouped into six range sites and three woodland sites.

Among practices planned are: Wildlife habitat management, proper grazing use (bison), critical area planting (disturbed areas), noxious weed control, wildlife watering facilities, and recreation area improvements.

Park officials will keep a close eye on the key browse plants of deer, antelope, and elk. Sixteen photo points have been set up, where selected browse plants will be systematically photographed against a gridded backdrop to measure degree of use and vigor.

Park officials are favorably impressed with their cooperative experience in conservation planning at Wind Cave.—JOHN B. FARLEY, *biologist, SCS, Huron, S. Dak.* ♦

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